

Warm Up #11-2

1. Find the next 2 numbers in the sequence:

14, 17, 20, 23, _____, _____

2.

n	1	2	3...
$t(n)$	14	17	20...

 Find an equation for the sequence.

3. Use your equation to find the 20th term.

Arithmetic Sequences

$$n \in \mathbb{Z}^+$$

$$t(n) = 3n + 11 \quad \begin{array}{c|ccc} n & 1 & 2 & 3 \\ \hline t(n) & 14 & 17 & 20 \end{array}$$

u_n = the n^{th} term or the general term

d = common difference $(u_{n+1} - u_n)$

$$u_n = u_1 + d(n - 1)$$

$$t(n) = 14 + 3(n - 1)$$

$$t(n) = 14 + 3n - 3$$

$$t(n) = 3n + 11$$

Example:

Given three consecutive terms, find k .

$$3k + 1, \quad k, \quad -3$$

$$d = -3 - k$$

$$d = k - (3k + 1)$$

$$\begin{array}{rcl} -3 - k & = & k - 3k - 1 \\ +2k & & +2k \end{array}$$

$$\begin{array}{rcl} -3 + k & = & -1 \\ +3 & & +3 \end{array}$$

$$\boxed{k = 2}$$

HW: Read p. 131, do

5C p. 132, # 2 - 8, 13